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1995 Gordon Research Conference on  
Molecular Membrane Biology

Final Progress Report  
ONR Grant No. N00014-95-1-0856

The Gordon Conference on "Molecular Membrane Biology" was held July 9 to 15, 1995 in Andover, New Hampshire at Proctor Academy. One hundred and thirty six scientists attended, including the major figures in the cell biology and biophysics of protein localization, vesicle sorting, and membrane protein biogenesis. Represented among the attendees were established scientists as well as post-doctoral fellows (15%) and students (10%). Sixty percent of the participants were from the U.S. and 40% foreign.

The quality of the presentations was exceptional. The Chair (Lila Giersch) and Vice-Chair (Suzanne Pfeffer) chose to mix longer presentations from more senior researchers with shorter talks from younger scientists. This format was well-received, and the attendees felt that one consequence was fresher data with fewer talks focusing on work that had been published. There was extensive discussion after each talk, and the usual more relaxed and protracted discussions stimulated by the Gordon Conference setting in the afternoons and evenings. All but 18 of the attendees presented their work either orally or in a poster.

Topics covered in the meeting included: bacterial and membrane protein biogenesis; membrane protein structure; maintenance of organelle identity; protein translocation and folding in the endoplasmic reticulum; inter-organellar transport; lipids, cholesterol, GPI links, and caveolae; anterograde and retrograde trafficking; endocytosis and exocytosis; and membrane fusion. One of the great strengths of this Gordon Conference is the breadth of expertise encompassed by its participants and represented in the presentations. Methods ranging from x-ray crystallography, fluorescent localization of proteins, in vitro reconstitution of vesicular sorting, electrophysiological measurements, and yeast genetics were all discussed with respect to their applications to the problems of how membranes are constructed, correctly sorted, and maintained in the cell. Highly significant biomedical problems are intimately related to these issues: mechanism of virus entry and reproduction in the cell, nerve signal transmission, regulation of cell growth, and assembly and secretion of molecules in the immune response. Each of these was discussed in one or more sessions.

The self-evaluation of this meeting placed it well above average for Gordon Conferences. The quality of science presented was rated 25.3 out of a possible 30 points (with the average score of all Gordon Conferences 22); the quality of discussion was rated 21.4 out of 30, significantly higher than the 1993 meeting (19.9) and the Gordon Conference average (17); and the management (16.7 out of 20) and atmosphere (15.9 out of 20) also were strong. The only suggestion which will be addressed in the next meeting was to insure that speakers do not go over their allotted time.